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RESEARCH OPPORTUNITIES RELATED TO THE HIRED FARM LABOR INPUT IN PRODUCTION AGRICULTURE

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The labor input in production agriculture traditionally has been identified with the farm operator and his family. Labor and management were often indistinguishable. Hired farm labor was generally viewed by farm operators as a "necessary evil." Questions about labor, demand, supply, price, quality, productivity and management common to inputs such as fertilizer, land and machinery received little attention from either farm operators or agricultural economists. The income, employment, and work environment problems of migrant farm workers have attracted some attention but the initiative generally has been from persons outside the agricultural establishment. Therefore, it is significant that the planners of this conference have included hired farm labor as one of the inputs to be discussed. Its inclusion recognizes a new set of problems stemming from basic changes in production agriculture. Increasing farm size, increasing complexity of agricultural production and the resulting increased quality of labor input necessary are basic changes internal to production agriculture. Important external factors at work include opportunities in non-agricultural employment, the myriad of farm labor laws and regulations and the impatience of society with a continuance of several socio-economic problems associated with agricultural employment.

This paper has three objectives. The first is to provide a perspective on the increasing importance of the hired farm labor

input. The second is to identify the most important farm labor problem areas for production agriculture. The final objective is to identify the more important farm labor research issues for consideration by NCR-117 in the development of its overall farm input research program.

The paper is divided into two basic parts. The first provides a statistical overview of the number of hired farm workers, importance of hired workers relative to family workers, wage rates, and the importance of expenditures for wages and contract labor relative to other inputs. The second part has five sections, each discussing a specific farm labor problem. The five sections are titled (1) changing structure, (2) labor supply, (3) labor management, (4) labor productivity, and (5) labor laws and regulations.

Hired Farm Labor in the North Central States

About 80 percent of the total labor input in farm production in the North Central States is from the farm family (Table 1). The farm family includes the operator and unpaid members of his family. Employed family members are considered part of the hired farm labor force. Therefore, the farm family is an even more important source of labor than the data in Table 1 imply at first glance. There is little variation among the 12 states in the relative importance of hired labor. There was an 11 percent decrease in number of family workers in the North Central States from 1974 to 1978. However, the number of hired farm workers in the 12 states changed little during the period 1974-78. The decreasing number

Table 1.

ANNUAL AVERAGE NUMBER OF HIRED WORKERS ON FARMS AND PERCENT HIRED OF TOTAL WORKERS, NORTH CENTRAL STATES AND U.S., 1974-78.

	1974		1975		1976		1977		1978	
	Hired[1]	% of Total[2]	Hired[1]	% of Total[2]	Hired[1]	% of Total[2]	Hired[1]	% of Total[2]	Hired[1]	% of Total[2]
Illinois	28	17.9	34	90.9	38	23.0	39	22.7	35	22.2
Indiana	23	15.9	27	20.1	29	22.8	28	23.1	27	24.8
Iowa	32	15.8	37	17.4	43	19.2	42	19.7	39	18.1
Kansas	20	18.3	21	20.4	22	22.0	22	22.4	18	19.6
Michigan	31	36.9	27	24.5	29	25.9	25	24.5	26	27.1
Minnesota	37	18.0	42	21.2	42	19.4	35	17.6	37	19.0
Missouri	31	16.0	27	13.2	27	13.8	20	11.6	27	17.2
Nebraska	19	15.8	20	17.2	20	17.1	21	19.4	22	20.0
North Dakota	10	15.6	9	15.8	10	16.9	8	12.9	9	14.2
Ohio	24	15.1	29	18.1	32	19.8	26	16.0	31	20.3
South Dakota	14	18.2	13	17.8	11	16.7	10	14.3	10	15.9
Wisconsin	46	23.5	49	24.6	46	23.2	46	23.1	48	25.8
North Central States	315	18.1	335	19.4	349	20.0	322	19.2	329	20.6
U.S.	1314	29.9	1317	30.3	1377	31.5	1296	31.2	1256	31.9

[1]Thousands of workers
[2]Percent hired is of total workers. Total workers equals family workers plus hired workers.
Source: Farm Labor, U.S. Department of Agriculture, Washington, Feb. 1977 and Feb. 1979.

of family workers resulted in the realtive importance of hired workers increasing in almost all the states during the five year period. This trend is similar to that of the U.S. as a whole.

There is little basis for forecasting a reversal in the upward trend in percent of all labor which is hired. Increasing farm size is likely to be the most important factor in the increased importance of hired farm workers in the North Central States. The relationship between farm size and the importance of hired farm labor is clearly demonstrated in Table 2. These are data for the U.S. excluding Alask and Hawaii. Fifteen percent of the U.S. farms had 1978 gross value of sales of $100,000 or more but they accounted for 81.1 percent of the $10.2 billion expenditure for wages and contract labor. More than three-fourths of the farms in the upper three size categories had wage and contract labor expenditures.

Cash wages accounted for nearly 80 percent of the $10.2 billion farm labor expenditures. About 46 percent of the farms hiring labor provided some perquisites. These perquisites accounted for about 13 percent of the hired labor expenditures. The remaining 8 percent was accounted for by contract labor.

A final point can be made from these 1978 farm expenditure data. Hired farm labor is not only increasing in importance relative to family labor, it is a major production expenditure relative to other inputs (Figure 1). The expenditures for wages and contract labor exceed those for each of the following inputs: rent, interest on borrowed capital, fertilizer and lime, farm and

EXPENDITURES FOR WAGES AND CONTRACT LABOR,
BY ECONOMIC CLASS OF FARM, U.S., 1978.

Economic class, Farms with Gross Value of Sales:	% of All Farms	% of Farms Reporting Any Wages and Contract Labor	Average per Farm in Dollars	Total Expenditure in Million Dollars	% of Total Wage and Contract Labor Expenditures
$200,000 and over	6.0	95.3	60,925	6,562	64.3
$100,000 to $199,999	9.0	87.2	10,579	1,716	16.8
$40,000 to $99,999	19.2	75.1	3,752	1,305	12.8
$20,000 to $39,999	15.6	58.6	1,148	324	3.2
$10,000 to $19,999	12.1	55.1	768	167	1.6
$5,000 to $9,999	11.9	45.2	321	70	.7
$2,500 to $4,999	9.1	35.1	140	23	.2
Less than $2,500	17.1	26.4	113	35	.3
Total	100.0	56.6	4,312	10,203	100.0

Source: Farm Production Expenditures for 1978, ESCS, U.S. Department of Agriculture, Washington, D.C., June, 1979.

motor supplies, building and fencing, fuel, taxes, agricultural chemicals, seeds and plants, and vehicles.

The cost per hour for the hired farm labor input increased substantially from 1974 to 1979 (Table 3). However, even with these increases, the average wage rate for farm workers remained less than 50 percent of the average earned by blue collar non-agricultural workers. To illustrate, in Ohio the average wage rate for hired farm workers paid by the hour and receiving cash wages only (no perquisites) increased from $2.07 per hour in 1974 to $3.18 per hour in 1978, a 54 percent increase. However, there was little progress in the farm rate compared to the non-farm rate. In 1974, the farm rate was 40.4 percent of the average factory worker hourly rate; it was 43.6 percent in 1978.

Changing Structure

The structural changes in production agriculture in the North Central States are well known. The number of farms has decreased. The average farm size has increased. The importance of borrowed captial has increased. Further economies of size await exploitation. In the absence of having inherited or married an opportunity, getting started in commercial farm production is nearly impossible. There are very important economic and social implications of these structural changes for farmers, rural communities and society. But there are also important implications and emerging problems for the management of the larger, more complex farms which remain in operation.

The most important reason for the increasing attention to hired farm labor is the emergence of labor problems directly associated

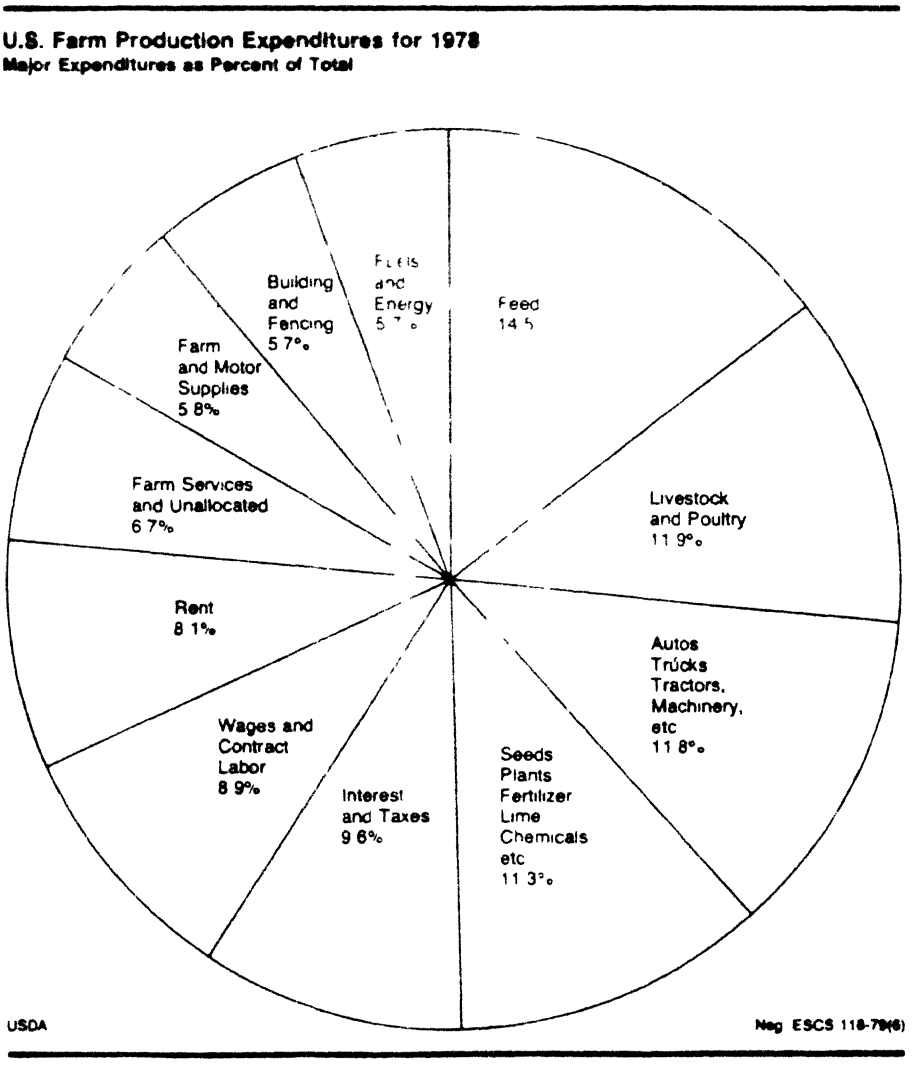
Table 3.

AVERAGE ANNUAL WAGE RATE, ALL HIRED FARM WORKERS,
NORTH CENTRAL STATES AND U.S., 1974-78

State	1974	1975	1976	1977	1978	1974-78 Increase $/Hour	1974-78 Increase %
	(Dollars per Hour)						
Illinois	2.32	2.37	2.56	2.86	3.17	.85	36.6
Indiana	2.24	2.39	2.75	2.72	3.06	.82	36.6
Iowa	2.23	2.42	2.64	2.82	3.03	.80	35.9
Kansas	2.33	2.67	2.92	3.05	3.39	1.06	45.5
Michigan	2.23	2.47	2.54	2.84	3.07	.84	37.7
Minnesota	1.83	2.27	2.68	2.72	2.97	1.14	62.3
Missouri	1.99	2.26	2.48	2.59	2.87	.88	44.2
Nebraska	2.15	2.15	2.54	2.72	2.89	.74	34.4
North Dakota	2.49	2.69	2.99	3.08	3.41	.92	36.9
Ohio	2.12	2.34	2.68	2.71	2.94	.82	38.7
South Dakota	1.90	2.13	2.25	2.35	2.48	.58	30.5
Wisconsin	2.09	2.25	2.45	2.44	2.50	.41	19.6
United States	2.25	2.43	2.66	2.87	3.07	.82	36.4

Source: Farm Labor, U.S. Department of Agriculture, Washington, Feb. 1977 and Feb. 1979.

Figure 1.



Source: Farm Production Expenditures for 1978, ESCS, U.S. Department of Agriculture, Washington, D.C., June, 1979.

with increased farm size. A truism is that in the absence of hired farm workers there are no hired farm worker problems. But the larger farms commonly employ labor (Table 2). Thus, there is the relationship between structural change and emergence of farm labor problems. In a recent study of 38 large New York dairy farms, the two most important reasons given by the dairymen for growth were "to provide more net income" and "to obtain greater efficiency." However, by far the most important reason given by these dairymen for limiting growth was "headaches of labor management" (McGuire and Stanton). In a Michigan study of dairy herd expansion, animal health, heat detection and manure handling were ranked as more serious problems than labor management (Speicher, Nott and Stoll). Four other expansion problems were less serious than labor. It is important to note that animal health and heat detection, the two most important expansion problems, are often related directly to labor problems.

It would take major changes in public policy, technology, financial institutions and lending policies to reverse the current structural trends. In the absence of these changes, the hired labor ramifications of increasing farm size and complexity will become more important. It appears that analysis of the family and hired labor implications would be a desirable addition to the many studies of structural change now underway. The focus of these studies should remain on size, growth, leverage, opportunity for entry, stability and equity issues. However, addressing some of the hired labor questions can best be done through integration with the structural research.

One can hypothesize some specific relationships between structural change leading to larger farms and the hired labor input. Specifically, as farm size increases, the importance of hired labor relative to operator and family labor would be expected to increase. The operator will spend an increasing portion of his time in management. The quality of labor, extent of mechanization and thus, labor efficiency will also increase. The complexity of the operation will increase causing the operator to become more dependent on the skills of employees. The formality of employer-employee relationships would also be expected to increase. Employees will be less likely to accept informal and sometimes vague rules and regulations from employers. The diversification of tasks within the farm business would be expected to decrease.

These kinds of changes in the labor input have implications for the farm operator. The manager's ability to adjust to and handle the responsibilities associated with a large farm will be an important factor in determining overall management success. There is no assurance that the management skills which facilitated growth to a large business size are necessarily the same as the skills necessary to manage the large business on a continuous basis. The importance of some skills will change little, e.g. production management. Some skills or attributes of the manager will become less important, e.g. the ability to handle strenuous physical work, the stamina necessary for long work days and work weeks, and the ability to make do with inadequate machinery and equipment. But most importantly, some skills will likely increase in importance, e.g. financial management and labor management.

Labor Supply

For any farm production input, questions of availability and price are important to farmers. The price part of the hired farm labor supply question has caused little uncertainty in recent years. Wages have increased at rates within the bounds of reasonable forecasts. Expanding coverage of agricultural employment with Federal and state labor laws and regulations has increased the cost of labor. Again, these increased costs were not unexpected. Few would predict major changes in the recent trends in wage rates and additional costs from labor laws and regulations.

The availability of labor is a much more complex question. To address it, we need to first identify some major characteristics of the demand for hired farm labor and the people employed on farms. Most agricultural production activities are seasonal. Therefore, there is a demand for seasonal workers as well as year-around workers. In 1976, about 2.8 million different persons 14 years of age and over did hired farmwork in the U.S. (USDA, The Hired Farm Working Force of 1978). There has been little change since 1971 in the number of persons doing farmwork. Only about 12 percent of the persons in the 1976 hired farm working force were full-time, i.e. had 250 days or more of farmwork during the year. Like the total number of farmworkers, the percent which are full-time has changed very little in recent years.

Farmers are typically employers of last resort. In 1976, about 65 percent of the hired farmworkers had less than 75 days of farmwork. When recruiting these short-term workers, employment history is seldom of concern. In 1976, 60 percent of all hired farmworkers in the U.S. were under 25 years of age. Thirty percent were 14-17 years

old. It is apparent that many persons enter and leave the hired farm working force each year. The seasonal nature of agricultural production, high unemployment rates, and agricultural jobs with low skill requirements are factors likely to frustrate public policies and programs designed to shift workers out of agriculture and keep others from entering. Research is needed which addresses the reasons why people offer their services for short-term farm employment. We also need to better understand the consequences of changes internal to agricultural production and changes in public policies which may affect the supply of labor.

Addressing questions about the supply of year-around labor for agriculture raises quite different questions than those relative to the supply of seasonal workers. The year-around positions generally require different skills than the seasonal positions. The positions generally can not be filled by people forced to work at the minimum wage because of limited skills. For the year-around workers, agriculture is unlikely to be the employer of last resort. Compensation competitive with the non-farm rates, opportunities for advancement, and a length of work day and work week similar to that in non-farm employment are factors most likely to influence directly the ability of agriculture to fill its year-around positions. Relative to the supply of year-around workers for agriculture, the most important research questions center on the images of farm employment held by potential employees, the advantages and disadvantages of farm employment relative to non-farm employment and the relationship between the skills farm employers seek in year-around employees and those available in the pool of potential employees.

Labor Management

During the last 20 years, we have seen much progress in farm management. Research has been focused on production management, financial management and marketing management. We no longer debate whether or not farm management is broader than production economics. We routinely deal with farm operators who are sophisticated business managers. Many perceive themselves as managers rather than farmers. These managers as well as researchers and farm management extension workers are coming to recognize that management of the farm labor input is an important problem. However, recognition of the labor management problems has led to surprisingly little progress in dealing with them. To date, practically all of our farm labor studies have been designed to describe employer, employee and farm employment characteristics. Ther has been little opportunity for additive effects from the research because it has not been based on the testing of hypotheses evolved from previous farm labor research. A comprehensive definition of farm labor management is essential for the identification of testable hypotheses. Hypothesis testing will make our farm labor management research additive.

Labor management is part of farm management. It is the procurement, development, motivation, and maintenance of all people involved in the farm business as paid or unpaid employees. It is broader than the hired labor input but its importance increases as the employment of labor increases. Farm labor management is more than applied economics. It is also applied pyschology and applied communication. As the definitions of procurement, development, motivation and maintenance make clear, labor management is multifaceted and complex. Procurement is the planning for, recruiting, hiring and orientation

of the personnel necessary to "get the job done" given the farm enterprise, land use, crop, livestock, machinery and equipment decisions which have been made. Development is the design, conduct, and evaluation of employee training activities. Motivation is stimulating employees to performances which are consistent with their own and the business' objectives. Evaluating performance, scheduling work, developing an organizational structure and compensating employees are all part of motivation. Finally, maintenance is providing the benefits, services and work environment which will build a commitment to continued employment on the farm (Robbins).

Recommendation of strategies for resolving labor management problems has been based almost entirely on theories not validated in farm settings. This can be illustrated best in the motivation area. Probably the most commonly asked labor management question is "How can I motivate my employees?" The ineffectiveness of economic motivators to answer this question has led us to the theoretical constructs of industrial psychology. There is a perceived simplicity of McGregor's Theory X-Theory Y characterization of labor managers, Maslow's hierarchy of worker needs and Herzberg's motivation-maintenance theory. But translating these theories into practical guidelines for farm labor managers is difficult. These and other theories need to be tested in a variety of farm settings. We need to re-examine our suppositions about farm labor managers, farm employment advantages and disadvantages and farm worker aspirations. This re-examination could well start with a focus on labor managers. There is much evidence from leadership studies in non-farm labor management situations to suggest that

a strategy of changing labor managers through training is unlikely to succeed. A preferred strategy may well be to change the labor input situation to conform with the manager's leadership characteristics (Fiedler, Chemers and Mahar).

Labor Productivity

Labor productivity is widely used as a measure of efficiency in production agriculture. The following kind of statement is illustrative. "Today, one farmer produces enough food to feed 59 people but 40 years ago he produced only enough to feed 11 people." Output per man as used here is a productivity measure but does not measure labor productivity in the partial factor productivity sense. It is also an inadequate total factor productivity measure as it does not measure the efficiency with which all resources are converted into agricultural products. The conceptual and analytical problems with macro measures of partial and total factor productivity are inseparable from those faced at the micro level. Analysis of the hired labor input at the farm level should involve measures of partial productivity, i.e. the productivity of labor as an input separate from each of the other inputs.

Ideally, micro farm labor productivity would be measured by the ratio of output to the input of labor. Both numerator and denominator would be measured in physical or in constant dollar terms (Lu, Cline, and Quance). Some examples are pounds of milk per man-equivalent, pounds of pork per man-equivalent, pounds of apples per hour of labor and value of dairy production per dollar of wages paid. These kinds of measures can be used to determine progress in labor productivity for a particular farm over time or

to compare several farms in a given year. However, there are important practical problems with labor productivity measures. The input and output data are very difficult to collect. Few farm accounting systems are designed to generate the necessary detailed enterprise and labor use data. More importantly, several other inputs directly influence labor productivity. Increased use of machinery and fertilizer, improved seed, and preventive health practices with livestock are examples of changes likely to increase labor productivity. Research is needed which identifies the sources of gain in labor productivity. There is especially high potential payoff from investigation of the labor productivity consequences of substitition of capital for labor, increasing quality of the labor input and the synergism from changing several inputs.

The question often raised by farm employers, What can I afford to pay for labor? is an important part of the needed labor productivity research. The question is deceivingly difficult to answer even though it captures in a simplistic way the uncertainty a farm employer faces in employing labor. It is an empirical question which must be answered on a farm by farm basis through examination of the quality of hired labor input, effectiveness of labor management practices and profitability of the farm business.

Labor Laws and Regulations

The increasing number of labor laws and regulations applied to agricultural employment has imposed additional costs and record-keeping requirements on farm employers. Some legally required benefits apply to all farm employers, e.g. workers' compensation

in most states and social security, but several others apply only to relatively large farm employers, e.g. Federal minimum wage, and unemployment compensation (Erven, et.al.). These benefits add to the cost of labor on large farms compared to small farms. However, they also improve the attractiveness of employment on large farms. Congress and state General Assemblies will almost certainly consider more inclusive coverage of labor laws and regulations for farm employment. In particular, changes in unemployment insurance, child labor regulations, OSHA, minimum wage, ovetime pay requirements and workers' compensation could have important labor cost and employment implications.

Relatively little research has focused on the impacts of specific labor laws and regulations on the hired farm labor input. The Cooperative Extension Services in many states publish general statements of objectives, coverage, employer provisions and employee provisions for each of the laws and regulations affecting farm employment. However, these extension publications do not provide management guidelines for captializing on the laws and regulations to improve the desirability of farm employment. Furthermore, there is no analysis of the impacts on labor cost, recordkeeping and employment practices of the various laws and regulations discussed in these publications.

The National Commission on Unemployment Insurance is currently studying the likely impacts of extending unemployment insurance to virtually all agricultural employers. The Minimum Wage Study Commission is studying the impacts of minimum wage on employers and employees. There have also been some general studies of the impacts of child labor laws and OSHA. However, these studies are national in

scope and seldom oriented to a specific farm type or group of employers. There continues to be a need for extension of these impact studies to specific farm types. Research is also needed to identify the impacts of current provision and proposed changes on cost of production, recordkeeping and reporting requirements, and employment practices including hiring and lay-offs.

Summary

The hired labor input is important to production agriculture in the North Central States. Its importance relative to family labor is increasing. It is also an important cost of production relative to other inputs usually receiving research attention by agricultural economists. There are researchable questions stemming from several problem areas. In this paper, the problem areas of changing structure, labor supply, labor management, labor productivity, and labor laws and regulations have been discussed and specific research questions identified.

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